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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/310,598	05/12/1999	K. DEREK SHAEFFER	STFD.005PA	9042

7590 07/19/2004  
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MENDOTA HIEGHT'S, MN 55120

EXAMINER

LUGO, DAVID B

ART UNIT	PAPER NUMBER
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2634

15

DATE MAILED: 07/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/310,598

Applicant(s)

SHAEFFER ET AL.

Examiner

David B. Lugo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-5 and 11-28 is/are allowed.
- 6) ☒ Claim(s) 1 and 6-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see page 11, filed 4/27/04, with respect to claims 2-5 and 11-28 have been fully considered and are persuasive. The rejection of claims 2-5 and 11-28 has been withdrawn.
2. Applicant's arguments filed 4/27/04 regarding claims 1 and 6-10 have been fully considered but they are not persuasive.
3. Applicant states that the rejection fails to show how the second time interval is shorter than the first time interval, and that a faster clock speed for the digital circuitry relative to the analog circuitry does not imply a shorter time interval for processing at the digital circuitry. In response, in support of the statement that the digital circuitry processes the received data faster than the analog circuitry needs to capture the data, the examiner presents U.S. Patent 6,300,899 to King which describes present day digital processor capabilities enable processing data stored in memory 10-100 times faster than that required to collect the data, i.e. via analog RF front end circuitry (see col. 8, lines 21-27). Further, applicant states in page 9, lines 10-13 of the instant application, that when digital circuitry is operated at a speed that is high relative to the operating speed of the analog circuitry, the data throughput for the digital circuitry exceeds the data throughput for the analog circuitry. Thus, in the environment of RF receivers, one of ordinary skill in the art would recognize that the data throughput of the digital circuitry is faster than the data throughput of the analog circuitry in accordance with the difference in their relative clock speeds, and accordingly, the digital circuitry needs less time to process the received data. The rejection of claims 1 and 6-10 are maintained.

*Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berthoumieux et al. European Patent 0 447 302 (English translation) in view of King U.S. Patent 6,300,899.

6. Regarding claim 1, Berthoumieux et al. teach a mobile radio communication device having analog circuitry (transmitter-receiver component 2, channel selection component 3, analog/digital conversion component 5) and digital signal processing circuitry (processing unit 6) clocked sufficiently fast to generate noise, where the activity of the digital processing unit is reduced during transmission or receiving, as stated on lines 1-4 of page 3. Berthoumieux et al. further disclose means of detection 8 of the instants corresponding to transmission or receiving of radio signals in order to reduce the activity of the digital processing unit during these instants, as stated in the last sentence of page 3. The periods where the activity of the digital processing unit is reduced corresponds with "a reduced-activity mode" occurring at a first interval, and the periods where the activity of the digital processing unit is not reduced is considered a "communication mode other than the reduced-activity mode" occurring at a second interval.

7. Berthoumieux et al. do not expressly state that the second timer interval is shorter than the first time interval. However, Berthoumieux et al. do state that the speed of the clocks of the digital circuitry is significantly faster than the speed of the clocks of the analog circuitry (see

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page 3, lines 25-30). One of ordinary skill in the art would recognize that the data throughput of the digital circuitry is faster than the data throughput of the analog circuitry in accordance with the difference in their relative clock speeds. Accordingly, since the data throughput for the digital circuitry exceeds the data throughput for the analog circuitry due to the difference in their relative clock speeds, the digital circuitry needs less time to process the received data. For instance, King describes present day digital processor capabilities enable processing data stored in memory 10-100 times faster than that required to collect the data, i.e. than that collected via analog RF front end circuitry (see col. 8, lines 21-27).

8. Therefore, based upon the digital circuitry needing less time to operate upon the data than the analog circuitry, it would have been obvious to one of ordinary skill in the art to operate the digital circuitry during a shorter period than that of the analog circuitry processes data in order to conserve power consumed by the digital circuitry.

9. Regarding claim 7, the first data-communication interval is considered to be substantially greater than the second data-communication interval.

10. Regarding claim 9, Berthoumieux et al. further disclose a memory circuit coupled between the analog circuitry and the digital processing circuitry (see first paragraph starting on page 4). Since the communications device is capable of transmitting data, the analog circuitry is considered capable of reading data out of a memory circuit for transmission, and the digital signal processing circuitry is considered capable of writing data into the memory circuit.

11. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berthoumieux et al. in view of King and Krasner U.S. Patent 5,841,396.

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12. Regarding claim 6, Berthoumieux et al. disclose a mobile radio communications device as described above, but do not expressly teach that power is reduced to the analog circuitry.

13. Krasner teaches a receiver comprising both analog circuitry (RF to IF Converter 42, ADC 44) and digital circuitry (DSP 32) where the power to the analog circuitry is reduced after data collection is complete (see col. 7 lines 17-20).

14. It would have been obvious to one of ordinary skill in the art to employ the teaching of reducing the power to the analog circuitry after data collection, as disclosed by Krasner, in the mobile device of Berthoumieux et al. in order to prolong the life of the battery in the mobile unit, as Krasner discusses the need to conserve power to increase battery life (see col. 8, lines 27-28).

15. Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berthoumieux et al. in view of King and Cidon et al. U.S. Patent 4,991,772.

16. Regarding claim 8, Berthoumieux et al. disclose a mobile radio communications device as described above, and further state that it is known that the digital data processed by the digital processing unit is data which are put in memory coming out of an A/D conversion component.

17. Berthoumieux et al. do not expressly disclose that the memory is written at a rate that is asynchronous to the rate at which data is read out.

18. Memory circuits that allow data to be written at a rate that is asynchronous to the rate at which data is read out are well known in the art. For instance, Cidon et al. describe memory chips with asynchronous read/write capability (see col. 13, lines 10-12).

19. It would have been obvious to one of ordinary skill in the art to use a memory with asynchronous read/write capability in the mobile communications device of Berthoumieux et al. because it provides independent buffering without the need for a common clock.

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20. Regarding claim 10, Berthoumieux et al. disclose a mobile radio communications device as described above, and further state that it is known that the digital data processed by the digital processing unit is data which are put in memory coming out of an A/D conversion component. The analog circuitry is thus considered to write data into the memory circuit and the digital signal processing circuitry is considered to read data from the memory circuit.

21. Berthoumieux et al. do not expressly disclose that the memory is a FIFO memory.

22. FIFO memory circuits are well known in the art (see Cidon et al., col. 13, lines 10-12).

23. It would have been obvious to one of ordinary skill in the art to use a FIFO memory in the mobile communications device of Berthoumieux et al. because data can be written to or read from the memory from the analog or digital circuitry at its own independent clock speed without the need for a synchronous clock.

***Allowable Subject Matter***

24. Claims 2-5 and 11-28 are allowed.

25. The following is a statement of reasons for the indication of allowable subject matter:

26. Berthoumieux et al. '302 disclose a mobile radio communication device having analog circuitry and digital signal processing circuitry clocked sufficiently fast to generate noise, where the activity of the digital processing unit is reduced during transmission or receiving during a first time interval and the digital processing circuitry is active during a second interval.

Berthoumieux et al. do not disclose that the digital processing circuitry is active is during a known guard time for the data being communicated to the communication arrangement.

Although the use of guard times is well known, such as that disclosed by Wang '644 for allowing

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analog circuitry to settle, there is no teaching to suggest performing digital signal processing of the data during such a guard period.

***Conclusion***

27. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David B. Lugo** whose telephone number is **(703) 305-0954**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Stephen Chin**, can be reached at **(703) 305-4714**.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

P.O. Box 1450

Alexandria, VA 22313-1450



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**or faxed to:**

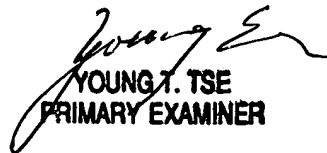
**(703) 872-9306**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

dl

7/8/04

  
YOUNG T. TSE  
PRIMARY EXAMINER